

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Sei-Hyung Ryu

Serial No.: To Be Assigned

Filed: Concurrently Herewith

For: VERTICAL JFET LIMITED SILICON CARBIDE POWER METAL-OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTORS AND METHODS OF FABRICATING VERTICAL JFET LIMITED SILICON CARBIDE METAL-OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTORS

Date: October 30, 2003

Mail Stop Patent Application  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)**

Sir:

Attached is a list of documents on Form PTO-1449, together with a copy of any listed foreign patent document and/or non-patent literature. A copy of any listed U.S. patent and/or U.S. patent application publication is not provided herewith in accordance with the waiver by the U.S. Patent and Trademark Office of requirements under 37 C.F.R. § 1.98(a)(2)(i) for all U.S. national patent applications filed after June 30, 2003 and for all international applications that have entered the national stage under 35 USC § 371 after June 30, 2003.

It is requested that these documents be considered by the Examiner and officially made of record in accordance with the provisions of 37 C.F.R. § 1.56 and Section 609 of the MPEP.

No fee is believed due. However, the Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-0220.

Respectfully submitted,



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**CERTIFICATE OF MAILING UNDER 37 CFR § 1.10**

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Candi L. Riggs

FORM PTO-1449 U.S. Department of Commerce Patent and Trademark Office		Attorney Docket Number: 5308-279	Serial No.: To Be Assigned
LIST OF DOCUMENTS CITED BY APPLICANT  (Use several sheets if necessary)		Applicants: Sei-Hyung Ryu	
		Filing Date: Concurrently Herewith	Group Unknown

## U. S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
	1	6,593,620	7/15/03	Hshieh et al.	257	335	
	2	6,455,892	9/02	Okuno	257	77	
	3	6,344,663 B1	2/5/02	Slater, Jr. et al.	257	77	
	4	6,297,172	10/2/01	Kashiwagi	438	773	
	5	6,246,076 B1	6/12/01	Lipkin et al.	257	77	
	6	6,239,463	5/29/01	Williams et al.	257	328	
	7	6,238,967 B1	5/29/01	Shiho et al.	438	244	
	8	6,221,700	4/24/01	Okuno et al.	438	151	
	9	6,211,035	4/01	Moise et al.	438	396	
	10	6,204,203	3/01	Narwanker et al.	438	785	
	11	6,190,973 B1	2/20/01	Berg et al.	438	275	
	12	6,165,822	12/26/00	Okuno et al.	438	142	
	13	6,136,728	10/24/00	Wang			
	14	6,117,735	9/12/00	Ueno	438	268	
	15	6,107,142	8/22/00	Suvorov et al.	438	285	
	16	6,100,169	8/8/00	Suvorov et al.	438	519	
	17	6,096,607	8/1/00	Ueno	438	522	
	18	6,063,698	5/16/00	Tseng et al.			
	19	6,054,352	4/25/00	Ueno	438	268	
	20	6,048,766	4/11/00	Gardner et al.			
	21	6,028,012	2/22/00	Wang			
	22	6,025,608	2/15/00	Harris et al.	257	77	
	23	5,972,801	10/26/99	Lipkin et al.	438	770	
	24	5,972,801	10/26/99	Lipkin et al.	438	770	
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	27	5,885,870A	3/99	Maiti et al.	438	261	

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28	5,837,572	11/17/98	Gardner et al.	438	199		
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33	5,184,199	2/2/93	Fujii et al.	29	10		
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39	2002/0072247	6/13/02	Lipkin et al.	438	767		
40	2001/0055852	12/01	Moise et al.	438	396		
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		Document Number	Date	Country	Class	Subclass	Translation Yes   No
	41	0637069 A1/ B1	2/1/95	EPO			
	42	DE 10036208	2/14/02	Germany			Abstract
	43	DE 198 09 554	9/10/98	Germany			Abstract
	44	DE 19900171	12/26/00	Germany			Abstract
	45	JP 03157974	7/5/91	Japan			Abstract
	46	JP 08264766	10/11/96	Japan			Abstract
	47	JP 09205202	8/5/97	Japan			Abstract
	48	JP 11191559	7/13/99	Japan			Abstract
	49	JP 11238742	8/31/99	Japan			Abstract
	50	JP 11261061	9/24/99	Japan			Abstract
	51	JP 11266017	9/28/99	Japan			Abstract
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55	JP 2000106371	4/11/01	Japan			Abstract	
56	JP0200025246	9/14/00	Japan			Abstract	
57	WO 97/17730	5/15/97	PCT				
58	WO 97/39485	10/23/97	PCT				
<b>59 OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>							
59	A.K. Agarwal, J.B. Casady, L.B. Rowland, W.F. Valek, and C.D. Brandt, "1400 V 4H-SiC Power MOSFET's," <i>Materials Science Forum</i> Vols. 264-268, pp.989-992, 1998.						
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66	Chang et al. "Observation of a Non-stoichiometric Layer at the Silicon Dioxide--Silicon Carbide Interface: Effect of Oxidation Temperature and Post-Oxidation Processing Conditions," <i>Mat. Res. Soc. Symp. Proc.</i> Vol. 640, 2001.						
67	Cho et al. "Improvement of charge trapping by hydrogen post-oxidation annealing in gate oxide of 4H-SiC methel-oxide-semiconductor capacitors," <i>Applied Physics Letters</i> . Vol. 77, No. 8, pp. 1215-7.						
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69	Copy of International Search Report for PCT/US01/30715.						
70	Copy of International Search Report for PCT/US02/11691 dated 12/4/02.						
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	74	Fukuda et al. "Improvement of SiO <sub>2</sub> /4H-SiC Interface Using High-Temperature Hydrogen Annealing at Low Pressure and Vacuum Annealing," <i>Jpn J. Appl. Phys.</i> Vol. 38, April 1999, pp. 2306-9		
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	87	Leonhard et al. "Long term stability of gate-oxides on n- and p-type silicon carbide studied by charge injection techniques," <i>Materials Science Engineering</i> , Vol. 46, No. 1-3, April 1997, pp. 263-6.		
	88	Lipkin et al. "Insulator Investigation on SiC for Improved Reliability," <i>IEEE Transactions on Electron Devices</i> . Vol. 46, No. 3, March 1999, pp. 525-32.		
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			Filing Date: Concurrently Herewith	Group Unknown
	90	M. K. Das, L.A. Lipkin, J.W. Palmour, G.Y. Chung, J.R. Williams, K. McDonald, and L.C. Feldman, "High Mobility 4H-SiC Inversion Mode MOSFETs Using Thermally Grown, NO Annealed SiO <sub>2</sub> ," <i>IEEE Device Research Conference</i> , Denver, CO June 19-21, 2000.		
	91	M.A. Capano, S. Ryu, J.A. Cooper, Jr., M.R. Melloch, K. Rottner, S. Karlsson, N. Nordell, A. Powell, and D.E. Walker, Jr., "Surface Roughening in Ion Implanted 4H-Silicon Carbide," <i>Journal of Electronic Materials</i> , Vol. 28, No. 3, pp. 214-218, March 1999.		
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	93	P.J. Tobin, Y. Okada, S. A. Ajuria, V. Lakhotia, W.A. Feil, and R. I. Hedge, "Furnace formation of silicon oxynitride thin dielectrics in nitrous oxide (N <sub>2</sub> O): The role of nitric oxide (NO)." <i>Journal of Applied Physics</i> . Vol. 75, No. 3, February 1, 1994, pp. 1811-1817.		
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	95	P.T. Lai, Supratik Chakraborty, C.L. Chan, and Y.C. Cheng, "Effects of nitridation and annealing on interface properties of thermally oxidized SiO <sub>2</sub> /SiC metal-oxide-semiconductor system," <i>Applied Physics Letters</i> , Vol. 76, No. 25, pp. 3744-3746, June 2000.		
	96	Pantelides et al., "Atomic-Scale Engineering of the SiC-SiO <sub>2</sub> Interface," <i>Materials Science Forum</i> . (2000) Vols. 338-342, pp. 1133-1136.		
	97	R. Schörner, P. Friedrichs, D. Peters, H. Mitlehner, B. Weis, and D. Stephani, "Rugged Power MOSFETs in 6H-SiC with Blocking Capability up to 1800 V," <i>Materials Science Forum</i> Vols. 338-342, pp. 1295-1298, 2000.		
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	99	Ranbir Singh, Sei-Hyung Ryu and John W. Palmour, "High Temperature, High Current, 4H-SiC Accu-DMOSFET," <i>Materials Science Forum</i> Vols. 338-342, pp.1271-1274, 2000.		
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	101	S. Sridavan, P.K. McLarty, and B.J. Baliga, "On the Presence of Aluminum in Thermally Grown Oxides on 6H-Silicon Carbide," <i>IEEE Electron Device Letters</i> , Vol. 17, No. 3, pp. 136-138, March 1996.		
	102	S.T. Pantelides, "Atomic Scale Engineering of SiC Dielectric Interfaces," DARPA/MTO High Power and ONR Power Switching MURI Reviews, Rosslyn, VA, August 10-12, 1999.		
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	106	V.R. Vathulya, H. Shang, and M.H. White, "A Novel 6H-SiC Power DMOSFET with Implanted P-Well Spacer," <i>IEEE Electronic Device Letters</i> , Vol. 20, No. 7, July 1999, pp. 354-356.	
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	108	Wang et al. "High Temperature Characteristics of High-Quality SiC MIS Capacitors with O/N/O Gate Dielectric," <i>IEEE Transactions on Electron Devices</i> . Vol. 47, No. 2, February 2000, pp. 458-462.	
	109	Xu et al. "Improved Performance and Reliability of N <sub>2</sub> O-Grown Oxynitride on 6H-SiH," <i>IEEE Electron Device Letters</i> . Vol. 21, No.6, June 2000, p. 298-300.	
	110	Y. Wang, C. Weitzel, and M. Bhatnagar, "Accumulation-Mode SiC Power MOSFET Design Issues," <i>Materials Science Forum</i> , Vols. 338-342, pp.1287-1290.	

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